

In the Claims

Amendments to the Claims:

Claims 1 -5 (canceled)

6. (currently amended) A method for forming within a silicon semiconductor substrate employed within an integrated circuit microelectronics fabrication a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon semiconductor substrate;

5 forming upon the silicon semiconductor substrate a silicon oxide pad oxide layer;
forming upon the silicon oxide pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon semiconductor substrate locally at a first temperature of at least above 1100 degrees centigrade, through the patterned silicon nitride mask layer to
10 form silicon oxide dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer; and

then oxidizing the silicon semiconductor substrate further at a second temperature no greater than 1100 degrees centigrade as desired to form greater thickness of silicon oxide layers; wherein the method does not include performing an
15 oxygen implant into the substrate.

Claim 7 (canceled)

8. (original) The method of Claim 6 wherein the silicon oxide pad oxide layer is formed employing thermal oxidation of the silicon semiconductor substrate in an oxidizing environment.

9. (original) The method of Claim 6 wherein the semiconductor silicon substrate is a single crystalline silicon wafer of (100) crystal orientation.

10. (currently amended) The method of claim 6, wherein the ~~dry~~ oxidizing environment is a dry oxidizing environment comprises comprising:

oxygen gas;

nitrogen gas; and

average room temperature humidity.

11. (currently amended) A method for forming a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon structure;

forming upon the silicon structure a pad oxide layer;

5 forming upon the pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon structure locally at a first temperature of at least above about 1100°C, through the patterned silicon nitride mask layer to form silicon oxide

dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer; and

- 10 then oxidizing the silicon structure further at a second temperature no greater than about 1100°C to form greater thickness of silicon oxide layers; wherein the method does not include performing an oxygen implant into the substrate.

12. (previously added) The method of claim 11, wherein the pad oxide layer is formed employing thermal oxidation of the silicon structure in an oxidizing environment.

13. (previously added) The method of claim 11, wherein the silicon structure is a single crystalline silicon wafer of (100) crystal orientation.

14. (previously amended) The method of claim 11, wherein the oxidizing environment is a dry oxidizing environment comprising:

oxygen gas;

nitrogen gas; and

average room temperature humidity.

15. (previously added) The method of claim 6, wherein the first temperature is from at least above 1100 degrees centigrade to about 1300 degrees centigrade and the second temperature is from about 950 degrees centigrade to about 1000 degrees centigrade.

16. (previously added) The method of claim 11, wherein the first temperature is from at least above 1100 degrees centigrade to about 1300 degrees centigrade and the second temperature is from about 950 degrees centigrade to about 1000 degrees centigrade.

17. (new) A method for forming within a silicon semiconductor substrate employed within an integrated circuit microelectronics fabrication a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon semiconductor substrate;

5 forming upon the silicon semiconductor substrate a silicon oxide pad oxide layer;

forming upon the silicon oxide pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon semiconductor substrate locally in a dry environment at a first temperature of from about 1200 to 1300 degrees centigrade, through the patterned
10 silicon nitride mask layer to form silicon oxide dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer; and

then oxidizing the silicon semiconductor substrate in a dry environment further at a second temperature from about 950 to 1000 degrees centigrade as desired to form
15 greater thickness of silicon oxide layers.

18. (new) The method of claim 17, wherein the silicon oxide pad oxide layer is formed employing thermal oxidation of the silicon semiconductor substrate in an oxidizing environment.

19. (new) The method of claim 17, wherein the semiconductor silicon substrate is a single crystalline silicon wafer of (100) crystal orientation.

20. (new) The method of claim 17, wherein the dry oxidizing environment comprises:
oxygen gas;
nitrogen gas; and
average room temperature humidity.

21. (new) A method for forming a silicon oxide dielectric field oxide (FOX) isolation layer comprising:

providing a silicon structure;

forming upon the silicon structure a pad oxide layer;

5 forming upon the pad oxide layer a patterned silicon nitride mask layer;

oxidizing the silicon structure locally in a dry environment at a first temperature of from about 1200 to 1300°C, through the patterned silicon nitride mask layer to form silicon oxide dielectric field oxide (FOX) isolation layers which prevent out-diffusion of nitrogen species from the silicon nitride mask layer; and

10 then oxidizing the silicon structure in a dry environment further at a second temperature from about 950 to 1000°C to form greater thickness of silicon oxide layers.

22. (new) The method of claim 21, wherein the pad oxide layer is formed employing thermal oxidation of the silicon structure in an oxidizing environment.

23. (new) The method of claim 21, wherein the silicon structure is a single crystalline silicon wafer of (100) crystal orientation.

24. (new) The method of claim 21, wherein the dry oxidizing environment comprises:
oxygen gas;
nitrogen gas; and
average room temperature humidity.